

REMARKS

Entry of the foregoing, re-examination and reconsideration of the subject matter identified in caption, as amended, pursuant to and consistent with 37 C.F.R. §1.112, and in light of the remarks which follow, are respectfully requested.

Claims 2, 3, 19, 20, 34, 35, 49 and 50 have been canceled without prejudice or disclaimer. In response to issues raised in the Office Action, claims 1, 18, 33 and 48 have been amended to incorporate therein the features of claims 3, 20, 35 and 50, respectively. Claims 65, 69, 73 and 77 were amended to correct their dependencies. Claims 1, 4-18, 21-33, 36-48 and 51-80 remain pending in this application.

Claims 1-80 were rejected under 35 U.S.C. §112, second paragraph, for the reasons set forth in paragraph (2) of the Office Action. Withdrawal of this rejection is respectfully requested in view of the above amendments and the following remarks.

Initially, Applicants note that the Office Action in paragraph (2) erroneously refers to the present independent claims as specifying an amount of SiC more than 50% by weight. This appears to be an oversight since the claims specify more than 50% by volume. Also, the Office Action indicates that the amount of SiC in the following claims is in the range of 30-200 pbw and greater than 50 pbw. This statement is incorrect since the amount of SiC in the independent claims is given in phr, i.e., parts per 100 parts of elastomer. The references in the claims to "more than 50% by volume" and the amount of SiC in "phr" are not at all contradictory as they do not cover the same kind of comparison. As expressed in claim 1 and in the specification (page 22, lines 5-9), the amount of SiC by volume is a ratio between the volume of SiC and the volume of the total reinforcing filler (the total including reinforcing inorganic filler as well as reinforcing non-inorganic filler) in the rubber composition. This allows for a comparison of the amount of SiC to the amount of total reinforcing filler without

having to consider differences in the density of SiC compared to the density of other reinforcing filler.

The use of phr give an indication of the amount of SiC by weight compared to the amount of elastomer in the rubber composition. Note the specification, page 26, lines 7-8. Thus, these two units are intended to provide different information, both of which are important to achieving the benefits of the invention.

In view of the above, the §112, second paragraph rejection should be withdrawn.

Claims 1, 2, 4, 5, 7-19, 21, 22, 24-34, 36, 37, 39-49, 51, 52 and 54-80 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,469,089 (Wang et al) for the reasons set forth in paragraph (4) of the Office Action. Reconsideration and withdrawal of this rejection are requested for at least the following reasons.

Claims 3, 20, 35 and 50 were not rejected on this ground. Since the feature of these claims has now been added to independent claims 1, 18, 33 and 48, respectively, this rejection has been rendered moot.

In view of the above, the §102(e) rejection over Wang et al '089 should be withdrawn. Such action is earnestly solicited.

Claims 1-80 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,121,346 (Visel et al) in view of evidence given in Wang et al '089 for the reasons set forth in paragraph (5) of the Official Action. Reconsideration and withdrawal of this rejection are requested for at least the following reasons.

Visel et al '346 discloses elastomeric compositions containing fillers composed of an agglomeration of small and large particles. A lengthy list of suitable large particles includes SiC with a notation that commercially available silicon carbides range in particle size from 5 to 150 nm (column 5, lines 9-11). This document does not disclose a SiC having a BET

specific surface area of between 20 and 200 m²/g as specified in the independent claims, a property whose importance is discussed on page 23, lines 1-5 of the specification.

This rejection relies on Wang et al '089 to provide a disclosure of a SiC having a BET surface area of 20-200 m²/g. According to the Office Action, the two commercial silicon carbides listed in the footnotes to Table 1 (column 8) have a BET surface area within the range of 20-200 m²/g. Respectfully, Applicants submit that the information in the data sheets for these products does not support the position set forth in the Action. The company data sheet for the BPT series indicates that the products have a BET surface area of greater than 100 m²/g. The SiC identified as BPT8044-1 in Wang et al '089 has a surface area of 55.9 m²/g, which is well below the minimum surface area set forth in the data sheets for the BPT series. Accordingly, one cannot reasonably conclude that BPT8044-1 has all the characteristics listed in the data sheet for the BPT series, including the particle size range.

The Office Action on page 9, paragraph (c) argues that the numbers of the SiC commercial products following the letters BPT and PT are batch numbers. This is more speculation. Clearly, one cannot precisely conclude that the particle sizes of the commercial products are within the claimed range of 10-350 nm. To support a rejection under 35 U.S.C. §102, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the prior art disclosure and that it would be so recognized by persons of ordinary skill in the art. Inherency is not established by possibilities or probabilities.

Applicants respectfully submit that Visel et al '346 does not anticipate a rubber composition including a SiC having a BET surface area between 20 and 200 m²/g, an average particle size in the range of 10 to 350 nm, and wherein the SiC constitutes more than 50% by volume of total reinforcing filler and is present in an amount greater than 50 phr.

In view of the above, the §102(e) rejection over Visel et al '346 in view of evidence given in Wang et al '089 should be withdrawn. Such action is earnestly solicited.

Claims 3, 6, 20, 23, 35, 38, 50 and 53 were rejected under 35 U.S.C. §103(a) as obvious over Wang et al '089 in view of Visel et al '346 for the reasons given in paragraph (9) of the Office Action. Reconsideration and withdrawal of this rejection are respectfully requested for at least the reasons which follow.

In discussing Wang et al '089, the Office Action states (page 4): "Table 4 of Wang teaches that the SiC can be utilized in 32 pbw. However higher amounts can also be contemplated because the overall amount of reinforcing filler can be as high as 200phr." Page 9, paragraph (d) refers to column 7, lines 25-29 of this document as support for the statement that higher amounts of SiC are contemplated. In fact, the disclosure in column 7, lines 25-29 refers to the ranges of reinforcing filler. But SiC is not characterized in this document as a reinforcing filler but as a wet skid enhancing filler. Thus, Wang et al '089 has clearly made a distinction between "wet skid enhancing filler" and "reinforcing filler" and gives examples for each of the products corresponding to this type of filler. In particular, note that SiC is an example of "wet skid enhancing filler" (col. 3, lines 56-67) and that in the long list of "the second filler or reinforcing filler" (col. 5, lines 35-60), SiC does not appear. Moreover, the patent states (col. 5, lines 61-62): "The second filler is different from the wet skid enhancing filler in the elastomeric composition." It should be noted that the amount of wet skid enhancing filler is disclosed in col. 3, lines 41-48, as being from 1 phr to about 60 phr but preferably from 1 phr to about 40 phr and the amount of SiC disclosed in the examples (table 4) are all between 18 and 32 phr. Thus, Wang et al '089 clearly does not disclose or suggest using SiC in an amount greater than 50 phr.

With specific reference to the items discussed on pages 8-10 of the Office Action, Applicants submit the following remarks.

a) Applicants have previously commented on the distinctions in the claims between percent by volume of SiC (which is based on the volume of reinforcing filler) and phr of SiC

(which is based on 100 parts by weight of elastomer – see page 26, lines 7-8 of the specification).

b) The ratio of carbon black to SiC is important since the present claims specify that SiC constitutes more than 50% by volume of total reinforcing filler. Since the majority of reinforcing filler in the compositions of Examples 8-13 of Wang et al '089 is carbon black, this feature of the claims is not disclosed in the reference.

c) This has been discussed previously.

d) This also has been discussed above.

e) Visel et al '346 refers generally to unspecified commercial varieties of SiC having particle sizes within and outside Applicants' claimed range. No BET surface areas are disclosed. As indicated previously, there is no clear and convincing evidence that the information in the data sheets refers to the silicon carbides identified in Wang et al '089. The fact that there is a discrepancy between the BET surface area range in the BPT series data sheet and that set forth for BPT8044-1 in Wang et al '089 throws into question the accuracy of the data vis-à-vis the silicon carbides identified in Wang et al '089.

f) This has been discussed previously.

g) The "known" silicon carbides are those conventionally used to provide skid resistance in tires as discussed on pages 3-4 of the specification. These are identified as fillers B and D in Table 1 on page 49 which do not have a BET surface area and particle size within the ranges of the present claims. These silicon carbides do not act as reinforcing fillers according to the data from Test 1 discussed on page 42 of the specification.

The data from Test 2 compares the properties of a cured composition containing carbon black with that of a composition containing a reinforcing SiC, i.e., one having the surface area and particle size set forth in the independent claims. The results discussed on pages 43-44 shows that the SiC acts as a true reinforcing filler.

Test 3 compares the results of using carbon black, a reinforcing type SiC and a non-reinforcing type SiC. The results are discussed on pages 45-46 of the specification.

The data shown in the specification confirms that wet skid enhancing silicon carbides such as those mentioned in Wang et al '089 are not considered reinforcing fillers and are not used in amounts which would provide reinforcement.

In view of the above, the §103 rejection over Wang et al '089 in view of Visel et al '346 should be withdrawn. Such action is earnestly solicited.

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order and such action is earnestly solicited. If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned at (703) 838-6683 at her earliest convenience.

Respectfully submitted,

Buchanan Ingersoll PC (Including attorneys
from Burns Doane Swecker & Mathis)

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By: George F. Lesmes
George F. Lesmes
Registration No. 19,995

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620